

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE INSTRUCTION 11-290

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Flying Operations

**COCKPIT/CREW RESOURCE
MANAGEMENT PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Instruction implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and is consistent with AFPD 11-4, *Aviation Service*. It establishes the AF cockpit/crew resource management program and is applicable to all civilian employees and uniformed members of the Regular Air Force, Air Force Reserve (AFR), and Air National Guard (ANG). Ensure records created as a result of processes prescribed in this publication are maintained in accordance with AFI 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Information Management System Records Disposition Schedule. Submit suggested changes to this instruction on Air Force (AF) Form 847, *Recommendation for Change of Publication*, through the chain of command, to this publication's office of primary responsibility (OPR), usaf.pentagon.af-a3.mbx.actf-workflow@mail.mil. Major Commands (MAJCOMs), direct reporting units (DRUs) and Headquarters Air Force (HAF) field operating agencies (FOAs) may supplement this instruction; coordinate supplements with the Deputy Chief of Staff, Operations, Directorate of Training and Readiness, Aircrew Task Force (AF/ACTF) before publishing. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Deputy Chief of Staff, Operations, Director of Training and Readiness (AF/A3T) for non-tiered compliance items.

SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. Major changes include Cockpit/Crew Resource Management program core curricula changes based on Air Force Safety Center recommendations, expansion and clarification of program oversight functionals, and updates to tier waiver designations.

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Section A—Cockpit/Crew Resource Management (CRM) Program Description

1. Overview. The Air Force Cockpit/Crew Resource Management (CRM) program provides crewmembers with performance-enhancing knowledge and skills directly applicable to their roles in the aerospace mission of the Air Force. CRM training is a key component of a combined effort to identify and manage threats to safe and effective mission operations. The CRM program begins with crewmembers' initial Air Force flying training and is continuously built upon throughout their operational careers. Tailor training objectives to the knowledge and skill level of the aircrew member. CRM training should emphasize performance skills more than academic objectives as the aircrew member becomes more proficient. Lead commands define "crewmember" in terms of their own operational mission requirements.

1.1. Goals. The CRM program goals are:

- 1.1.1. Maximize operational effectiveness and combat capability.
- 1.1.2. Preserve personnel and material resources.
- 1.1.3. Ensure the safety of non-combatant civilians.
- 1.1.4. Facilitate mishap reduction by providing skills, processes, tools and techniques to aircrew members to effectively identify threats and mitigate errors in aviation operations.

1.2. Objectives. Design and manage CRM training to accomplish the following objectives:

- 1.2.1. Develop aircrew understanding and proficiency of human factors skills to cultivate a safe and effective operational environment while accomplishing mission requirements.

1.2.2. Develop aircrew skills and strategies in recognizing and responding to threats and aircrew errors to prevent conditions that may lead to mishaps. Develop aircrew skills and strategies in the recognition and response to threat situations and aircrew-made errors, to prevent conditions that may lead to mishaps.

1.3. **Waivers.** Unless otherwise specified or tiered, the Deputy Chief of Staff for Operations', Director of Training and Readiness (AF/A3T) is the waiver authority for the provisions of this instruction. Request waivers through applicable channels to MAJCOM/A3 (operations or equivalent). As applicable, MAJCOM/A3s will forward requests to AF/A3T, with an info copy to ACTF.

2. Roles and Responsibilities.

2.1. **Headquarters Air Force, Director of Training and Readiness (AF/A3T).** Through the ACTF, manages the CRM program and provides resources to implement guidance in this publication.

2.2. Commanders.

2.2.1. MAJCOMs, FOAs and DRUs establish and manage their respective programs in accordance with this publication.

2.2.2. Provide proportional funding as necessary to support the lead MAJCOM CRM program.

2.3. **Air Force Safety Center (AFSEC).** Provides advice and support to AF CRM Working Group as defined in **Section B** of this publication.

2.4. **CRM Program Managers.** Develop and implement local CRM program requirements are in accordance with this instruction. **(T-2).**

2.5. **Crewmembers.** Attend CRM training sessions and adhere to established policies and procedures in accordance with this instruction. **(T-2).**

3. Program Requirements. CRM programs are mandatory for aircrew members. **(T-2).**

3.1. **Guidance.** Lead MAJCOMs ensure CRM requirements, currency, tracking, and evaluation guidance are in AFMAN 11-2 mission design series (MDS) specific volumes 1 and 2, in accordance with AFI 11-200. **(T-2).** Ready Aircrew Program (RAP) tasking memo or similar product may provide additional guidance. Guidance includes:

3.1.1. Establishing training frequency, required attendees, and method for tracking crewmember currencies.

3.1.2. Use of AF Form 4031, *CRM Skills Criteria Training/Evaluation Form*, or MAJCOM, FOA, DRU-approved substitute, to establish the skills training and evaluation criteria.

3.1.3. If using a contract vehicle, provide a uniform CRM program via a contract vehicle that covers all applicable units to include units gained from AFR or ANG.

3.2. **Training Program.** Each MAJCOM, FOA and DRU CRM training program manager will ensure the following is addressed.

3.2.1. **CRM Skills.** Skills must be:

3.2.1.1. Integrated into flight briefings and debriefings. (T-2).

3.2.1.2. Integrated into training syllabi. (T-2).

3.2.1.3. Evaluated during initial qualification and recurring evaluations and assessed during designated CRM training events using the AF Form 4031, or approved substitute. (T-2). In addition, the AF Form 4031 will be used as a framework to assess CRM skills and strategies during all aircrew evaluations while using the AF Form 3862, *Flight Evaluation Worksheet*. (T-2).

3.2.2. CRM core curricula. The CRM core curriculum includes the following knowledge and skill sets that are to be taught and demonstrated during classroom and simulator training (see AF Form 4031 or approved substitute.) (T-2).

3.2.2.1. Communication. Includes knowledge of common errors, cultural influences, and barriers (rank, age, experience, position, etc.). Skills will encompass listening, feedback, precision and efficiency of communication with all members and agencies (crewmembers, wingmen, weather, air traffic control, intelligence, etc.). (T-2). Use precise terminology, acknowledge all communications, and ask questions/provide clarification when necessary.

3.2.2.2. Crew/Flight Coordination. Includes the knowledge and skills required within (internal) and outside the crew/flight members (external) for mission coordination, flight/mission integrity contracts, team-building, leadership, command authority, responsibility, behavioral styles, assertiveness, persistence, conflict resolution, hazardous attitudes, legitimate avenues/methods of dissent, and solution driven statements. Adapt as situational demands require, focus attention on task, and ask for inputs.

3.2.2.3. Mission Analysis. Includes pre-mission analysis and planning, briefing, ongoing mission evaluation, and post mission debrief. Clearly define mission overview/goals. Analysis instruction will include specific threat and error management tools and techniques. (T-2). Debrief instruction will include aircrew responses and outcomes to threats and errors. (T-2).

3.2.2.4. Risk Management (RM)/Decision Making. Includes risk assessment, the risk management processes (deliberate, real time RM)/tools, breakdowns in judgment and flight discipline, problem-solving, evaluation of hazards, and control measures. Identify contingencies and alternatives, gather all available decision data, and clearly state decisions.

3.2.2.5. Situational Awareness. Includes knowledge and skill objectives for identifying errors, preventing the loss of situational awareness, recognizing the loss of situational awareness, and techniques for recovering from the loss of situational awareness. Recognize the need for action and verbalize/act upon unexpected events.

3.2.2.6. Task Management. Includes establishing priorities; using available resources to manage workload, overload/under-load and complacency; managing automation, checklist discipline and standard operating procedures; and stating problems and proposed solutions.

3.2.3. CRM Training Phases. Each phase of training should prepare individuals to apply the knowledge and skills acquired in their specialty and motivate participants for the next phase of training. Training phases will include up-to-date CRM best practices. Curriculum will tailor CRM knowledge and skill objectives to fit the unique characteristics of each primary mission. Discussions will include the practical application of CRM skills and strategies for each crew position. (T-2).

3.2.3.1. Introductory or Awareness Training. Normally conducted in a formal training environment by Air Education and Training Command. Students learn standard CRM terminology and core concepts. Lesson plans will include a description of the building block approach to CRM training that the individual will participate in throughout their operational career. (T-2).

3.2.3.2. Formal Training Unit/Combat Crew Training School CRM Training. Students learn to apply knowledge and skills related to their assigned aircraft. Academic training is complemented during aircraft/simulator training. Emphasis should be placed on preflight planning, briefing, in-flight utilization, and debrief techniques for CRM. This should include a brief review of CRM core concepts identified in [paragraph 3.2.2](#) Mission-oriented simulator training (MOST) sessions or other simulated or actual operational scenarios may be used as an integral part of CRM training. Evaluate students for technical expertise, as well as the skills based on the six core curricula concepts. If aircrew training devices are not available, students should participate in group problem-solving exercises.

3.2.3.3. Mission-Specific Continuation Training. MAJCOMs, FOAs and DRUs are responsible for CRM continuation training (T-2). This training reinforces aircrew CRM academic knowledge, skills, and strategies. In addition, it bolsters the preemptive identification and mitigation of operational threats and aircrew-made errors, thereby reducing the potential for mishaps.

3.2.3.3.1. Emphasize CRM skills and strategies in the mission qualification and continuation training programs so they become inseparable parts of operational practices.

3.2.3.3.2. Frequency for recurring CRM continuation training is defined in the AFMAN 11-2 MDS-specific volume 1, a RAP tasking memorandum, or a similar product. Lead commands are responsible for providing guidance to standardize CRM MDS-specific training policies and requirements. All aircrew require mission-specific continuation training. Separating training by crew position should be avoided. However, it is not mandatory to conduct this training with a complete aircrew.

3.2.3.4. Flight Instructor Training. All flight and simulator instructors complete instructor-specific CRM training. (T-2). This training will normally be accomplished as part of an instructor upgrade program. (T-2). Courseware builds on the previous blocks of training, both to reacquaint candidates with CRM fundamentals and to maintain continuity of terminology and strategies. MAJCOMs, FOAs and DRUs develop courseware related to instructing and evaluating key skills that apply to command and aircraft-specific missions. (T-2). Personnel may conduct this training

at operational units, formal training units, or a combination, as required. Training includes, but is not limited to, proper use of AF Form 4031 (or approved substitute).

3.2.3.4.1. Include CRM instructor or evaluator training in all instructor upgrade programs (T-2).

3.2.3.4.2. CRM instructors and evaluators should be highly proficient in all CRM skills and be experts in the recognition, observation, and reinforcement of these skills as they are applied by aircrew members in a mission environment.

3.2.3.4.3. Initial CRM Instructor Course. This course will be completed in conjunction with aircrew member instructor qualification upgrade to provide enhanced CRM insights and effective, practical CRM tools for instructors. **(T-2)**. Existing aircrew instructors and evaluators who have not previously attended an instructor CRM course, must complete this training. **(T-2)**. See AFMAN 11-2MDS, Volume 1, RAP tasking memo, or similar product for specific requirements.

3.2.3.5. Facilitator Training. The CRM facilitator training course is intended to teach foundational CRM skills and principles that make CRM effective and motivating to aircrew members.

3.2.3.5.1. Formal CRM academic curricula must be delivered by a trained CRM facilitator. **(T-2)**. Facilitator training will include training in running exercises, structured crew observation, and effective academic feedback. **(T-2)**.

3.2.3.5.2. Obtaining CRM Facilitator Training. CRM facilitator training is obtained via any Department of Defense (DoD) or non-DoD agency that provides certified or accredited CRM or CRM facilitator training and/or is recognized by the MAJCOM CRM program manager. **(T-2)**

3.2.3.5.3. CRM Facilitators. Once trained, CRM facilitators are expected to maintain knowledge of current CRM concepts. Though the formal CRM facilitator training course provides foundational CRM concepts and principles, CRM facilitators should continually update their CRM knowledge, in addition to updating their classroom academic skills.

4. Supporting Information. AFSEC, MAJCOM, FOA, and DRU safety staffs will screen mishap reports for human performance errors (T-2). This safety information should be available for use during all phases of CRM training, either as part of simulator scenarios or for CRM case studies. Command/unit safety staff provide timely sanitized “Limited Use” information to CRM program managers as directed by AFI 91-204, *Safety Investigation and Hazard Reporting*.

Section B—CRM Program Administration

5. Air Force Oversight. AF/A3T provides oversight of the Air Force CRM program. The CRM Steering Committee and Working Group provide a means of gathering and analyzing program effectiveness and changes.

5.1. **The AF CRM Steering Committee.** The Steering Committee standardizes CRM program requirements, terminology, and change management.

5.1.1. Membership.

5.1.1.1. ACTF, Chair.

5.1.1.2. Deputy Chief of Staff, Operations, Directorate of Training and Readiness, Combat Air Forces Division (AF/A3TC).

5.1.1.3. Deputy Chief of Staff, Operations, Directorate of Training and Readiness, Mobility Air Forces Division (AF/A3TM).

5.1.1.4. HQ Air Force Flight Standards Agency, Operations Directorate (AFFSA/XO).

5.1.2. **Schedule.** The Steering Committee meets prior to each Aircrew Management Executive Council (AMEC) meeting and as needed to review inputs and set working group agenda items.

5.1.3. **Contact information.** ACTF workflow email: usaf.pentagon.af-a3.mbx.actf-workflow@mail.mil.

5.2. The AF CRM Working Group.

5.2.1. **Membership.** Members of the Steering Committee, AFSEC representative, MAJCOM, FOA, DRU A3 (or equivalent) representatives, and additional personnel as designated by the Steering Committee.

5.2.2. **Scope and Administration.** The Working Group reviews program execution, policy changes, industry standards, and feedback received from command programs.

5.2.2.1. The Steering Committee chair provides resources for administrative support.

5.2.2.2. The Working Group will meet in conjunction with AMEC meetings. Agenda items may be submitted to the steering committee for consideration.

5.2.2.3. Report recommendations and findings to the Director of Training and Readiness (AF/A3T) and then disseminate to MAJCOM, FOA and DRU operations directorates.

5.3. Command Execution and Oversight.

5.3.1. **Execution and Oversight.** MAJCOM, FOA and DRU operations directorates provide execution and oversight of command CRM program. MAJCOM, FOA and DRU safety and surgeon general directorates are advisors and provide respective subject matter experts to the operations directorates for inputs to course content and delivery.

5.3.2. **CRM Program Manager.** Each MAJCOM, FOA and DRU will appoint a CRM program manager within the operations (or equivalent) function that will be responsible for the command program. **(T-1).** The CRM program manager will:

5.3.2.1. Ensure lead command's 11-2 MDS specific volumes 1 and 2 publications (or RAP tasking memo/similar product) provide CRM policy guidance. **(T-2).**

5.3.2.1.1. Implement lead command CRM policy guidance. **(T-2).**

5.3.2.1.2. Ensure each applicable CRM training phase ([paragraph 3.2.3](#)) is implemented and evaluated. **(T-2).**

5.3.2.1.3. Forward AF Form 4031 (or approved substitute) trend data to CRM instructors/facilitators. **(T-2).**

5.3.2.1.4. Ensure a system is in place to collect topic-relevant aircrew performance information (e.g., Standardization and Evaluation trends, sanitized mishap data, hazardous air traffic reports (HATR), military flight operations quality assurance (MFOQA) analysis, Line Oriented Safety Audit (LOSA) findings, Airman safety action program (ASAP) reports, and inspector general reports), and send to CRM instructors and facilitators. **(T-2).**

5.3.2.1.5. Evaluate contractor implementation of CRM program objectives. **(T-2).** Where discrepancies are identified, initiate corrective actions. **(T-2).**

5.3.2.1.6. Ensure quality assurance representatives (QARs) and Inspectors General have current evaluation guidance to evaluate CRM program objectives. **(T-2).** Where discrepancies are identified, initiate corrective actions. **(T-2).**

5.3.2.1.7. Provide feedback to CRM Working Group regarding program status covering: training continuum, standardization, and research and development needs. **(T-2).**

5.3.2.1.8. Interact with MAJCOM, FOA or DRU CRM advisors (Safety, aerospace physiology, etc.), ensuring CRM training is effective and minimizes redundancies with other programs given by Safety, Aerospace Physiology, etc.. **(T-2).**

5.3.2.1.9. Provide training to develop and improve CRM knowledge and skills, based on [paragraph 4](#), information procured via the AF Form 4031 (or approved substitute), and sources deemed pertinent by the MAJCOM CRM program manager (T-2). Sources may include: AFSEC and MAJCOM safety reports, military and civilian aviation mishaps, ASAP reports, MFOQA analysis, MAJCOM standardization/evaluation information, Federal Aviation Administration (FAA) advisory circulars, FAA safety alerts, LOSA recommendations, and findings from the aviation industry.

5.3.2.1.10. Ensure continuation training incorporates real-world operational experiences, sanitized mishap data, research findings, critiques, and flight evaluation trends. **(T-2).** Courseware will contain up-to-date case studies covering human factors elements and will be presented in an interactive format so as to exercise students' decision-making and reasoning skills and, where appropriate, stimulate discussion. **(T-2).** The CRM knowledge and skill objectives taught will be tailored to the unique characteristics of the MAJCOM, FOA, DRU's primary missions. **(T-2).**

5.3.2.1.11. Identify the process for gathering, analyzing and incorporating trend data from MAJCOMs into existing training and evaluation programs. **(T-2).**

5.3.2.1.12. Require CRM managers ensure continuity of course content with Air Education and Training Command's introductory courses. **(T-2).**

5.3.2.1.13. Ensure that data collected and/or generated through CRM and trend gathering processes is not used for monitoring aircrew performance to initiate

punitive or adverse action. (T-2).

5.3.2.1.14. The above requirements are not all inclusive and MAJCOMs may augment their CRM training with aviation industry standard practices or methodologies. Training for other programs should comply with MAJCOM specific supplements, if any, to this publication. MAJCOMs will continue to adhere to the training requirements outlined in this publication. (T-2).

5.3.3. **Command Steering Committees.** MAJCOMs, FOAs and DRUs may establish command steering committees to identify the most effective methods for delivering and administering CRM programs.

MARK D. KELLY, Lt Gen, USAF
DCS, Operations, Plans and Requirements

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 11-2, *Aircrew Operations*, 31 January 2019

AFPD 11-4, *Aviation Service*, 12 April 2019

AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 21 September 2018

AFI 33-360, *Publications and Forms Management*, 1 December 2015

AFI 91-204, *Safety Investigation and Hazard Reporting*, 27 April 2018

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

Prescribed Form

AF Form 4031, *CRM Skills Criteria Training/Evaluation Form*

Adopted Form

AF Form 847, *Recommendation for Change of Publication*

AF Form 3862, *Flight Evaluation Worksheet*

Abbreviations and Acronyms

A3—Operations

AF—Air Force

AFI—Air Force Instruction

AFPD—Air Force Policy Directive

AFR—Air Force Reserve

AMEC—Aircrew Management Executive Council

ANG—Air National Guard

ASAP—Airman Safety Action Program

CRM—Cockpit/Crew Resource Management

DOD—Department of Defense

DRU—Direct Reporting Unit

FAA—Federal Aviation Administration

FOA—Field Operating Agency

HATR—Hazardous Air Traffic Report

LOSA—Line Oriented Safety Audit

MAJCOM—Major Command

MDS—Mission Design Series

MFOQA—Military Flight Operations Quality Assurance

MOST—Mission-Oriented Simulator Training

QAR—Quality Assurance Representative

RAP—Ready Aircrew Program

RM—Risk Management

Terms

A3—Standard A-Staff two-digit office symbol for Operations.

Cockpit/Crew Resource Management (CRM)—The effective use of all available resources (people, weapon systems, facilities, equipment, and environment) by individuals or crews to safely and efficiently accomplish an assigned mission or task. CRM is the terms used to refer to the training program, objectives, and key skills directed to this end. MAJCOMs may implement their programs as either "cockpit" or "crew" resource management based on their respective missions.

Communication—The act of sharing information with others to cause action: to direct, to inform, to question, or to persuade.

Coordination—As used in this instruction, the act of working with all the members of the crew/flight to accomplish the tasks of the mission.

Crew—As used in this instruction, any collection of Air Force personnel who routinely work together to accomplish an Air Force mission. For example, an air task order-designated team of fighter pilots and airborne battle managers prosecuting an interdiction mission uses "crew" skills to maximize effectiveness.

Decision Making—The ability to choose a course of action using logical and sound judgment based on available information.

Errors—Actions or inactions that lead to deviations from organizational or flight crew intentions or expectations, reduce safety margins, and increase the probability of adverse operational events on the ground or in flight. Unmanaged and/or mismanaged errors can lead to an undesired aircraft state. Errors in the operational context tend to reduce the margins of safety and increase the probability of adverse events.

Flight Discipline—The judgment and actions exercised by AF personnel to adhere to the spirit, intent, and written word of governing guidelines in the presence of temptation to do otherwise, while executing the Air Force flying mission. It also includes the prioritization of tasks based on crew responsibilities to ensure safe mission accomplishment while demonstrating the highest degree of integrity in the performance of flight duties.

Mission Debrief—Reviewing and discussing mission accomplishment looking at what was achieved, what barriers were encountered and how the mission could be accomplished better next time.

Mission-Oriented Simulator Training (MOST)—Training presented as a part of a CRM program in a realistic, operationally-based simulator environment in real time.

Mission Planning—Taking all of the information for a mission and developing short term, long term, and contingency plans to coordinate, allocate, and monitor crew/flight and aircraft resources. Effective planning leads to flight conduct that removes uncertainty, increases mission effectiveness and enhances safety.

Risk Management—The systematic process of identifying hazards, assessing risk, making control decisions, implementing control decisions and supervising/reviewing the activity for effectiveness for both on- and off-duty missions/activities.

Skills Criteria—Defined skills used as the basis for operational training and evaluation. The characteristics of the skill are that they are easily identifiable and offer consistency in grading evaluation.

Task Management—The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environment changes.

Threat—An event or error that occurs outside the influence of the aircrew (i.e., it was not caused by the crew), that increases operational complexity and must be managed to maintain safety margins, and requires crew attention. All threats have the potential to negatively affect flight operations.